

AperTO - Archivio Istituzionale Open Access dell'Università di Torino

Tax limits and local elections

This is the author's manuscript

Original Citation:

Availability:

This version is available <http://hdl.handle.net/2318/1591545> since 2016-09-05T15:36:50Z

Published version:

DOI:10.1007/s11127-016-0312-0

Terms of use:

Open Access

Anyone can freely access the full text of works made available as "Open Access". Works made available under a Creative Commons license can be used according to the terms and conditions of said license. Use of all other works requires consent of the right holder (author or publisher) if not exempted from copyright protection by the applicable law.

(Article begins on next page)



UNIVERSITÀ DEGLI STUDI DI TORINO

This is an author version of the contribution published in:

Questa è la versione dell'autore dell'opera pubblicata in:

Public Choice, vol. 166(1), 2016, pp. 53-68

doi:10.1007/s11127-016-0312-0

The definitive version is available at:

La versione definitiva è disponibile alla URL:

<http://link.springer.com/10.1007/s11127-016-0312-0>

Tax limits and local elections

March, 2015; revised: August, 2015; January, 2016

Abstract

This paper exploits variation in tax limits across over 7,000 Italian municipalities during the 2000s to investigate their impact on voter turnout and local election outcomes. The empirical analysis is based on a panel data estimator on about 14,000 municipal elections during the 2001-2010 decade and on a quasi-experimental approach focusing on the fiscal limitation treatment of municipalities (local income surcharge freeze) in the years 2001 and 2006, where the trajectory of local turnout in the concurrent general elections is used as the counterfactual. The evidence suggests that tax limits provoke: a) a modest fall in voter turnout in mayoral elections; b) a mild decrease in the number of mayoral candidates; c) a sizeable widening of elected mayors' win margins and some improvement in mayors' valence proxies. The evidence is compatible with the hypothesis that the imposition of tax limits lowers the ideological stakes of local elections, favors party-line crossing, and promotes vote convergence based on the valence of candidates.

JEL classification: D72; H77; C23.

Key words: local elections; voter turnout; tax limits.

1. Introduction

After almost three decades of widespread devolution of taxing and spending powers to regional and local governments, the late 2000s saw a reversion in the fiscal decentralization process both in the developed and in the developing world (Maleski *et al.* 2014). As far as Europe is concerned, most countries restricted the fiscal autonomy of local governments by introducing tax and expenditure limits (TEs) (IEB 2013).

This paper aims at investigating the consequences of the imposition of tax limits on voter turnout and on the outcomes of Italian local elections. It exploits the unique institutional features of the Italian system of tax limits, particularly their time-series and cross-municipality variation, and uses voter turnout in parallel parliamentary elections as the counterfactual.

Somewhat surprisingly, relatively little attention has been devoted to the analysis of the impact of fiscal decentralization/centralization on voter turnout in regional and local elections (Blais *et al.* 2011). Percival *et al.* (2007) find that turnout is higher in US states that spend more on valued public programs (education, health) and impose heavier tax burdens. Henderson and McEwen (2010) study voter participation in regional elections across a number of OECD countries, and conclude that regions that gained power have recorded higher levels of voter turnout. Finally, Andersen *et al.* (2014) show that voter turnout tends to be higher in Norwegian localities where the stakes of elections (tax revenues from hydropower generation resources) are higher, and Michelsen *et al.* (2014) find that decentralization of local public good provision boosts voter turnout in German municipalities.

Indeed, the conventional rational voting framework (Dhillon and Peralta 2002; Feddersen 2004) suggests that fiscal decentralization should foster party competition and voter turnout in local elections. On the other hand, its impact on the mechanism of candidate selection is less obvious. Consider the most general model of voluntary, costly voting, wherein ideologically biased voters (say, conservative *versus* progressive) receive informative signals about candidates' commonly valued competence (Ghosal and Lockwood 2009; Krishna and Morgan 2011; Bernhardt *et al.* 2011; Aldashev 2015). Within that model, any mechanism narrowing the positional issue gap between candidates (as a constitutional limit on their tax rates in the spirit of Brennan and Buchanan 1980) makes it more likely that voting occurs according to competence signals than to own ideological views. The switch to competence voting tends to lower voter turnout owing to the perception of smaller electoral stakes. However, such a switch also improves the selection property of local elections by favoring the

convergence of votes to the most valent candidate, irrespective of their ideologies.

The above reasoning is reminiscent of Stokes's (1963) argument - more recently formalized by Groseclose (2001) - that deemphasizing position issues (*i.e.*, choosing a policy from a set of alternatives over which a distribution of voter preferences is defined) amplifies the importance of candidates' valences, and is in line with the idea that a decline in voters' ideological attachment and polarization leads to more cost-efficient policies (Svensson 2005), smaller equilibrium political rents (Banerjee and Pande 2007; Casey 2015; Aldashev 2015), better performance in the provision of local public services (Geys *et al.* 2010), and the creation of a growth-promoting environment (Besley *et al.* 2010).

I analyze the impact of the Italian system of tax limits on voter turnout and candidate competition in the elections held during the past decade in more than 7,000 Italian municipalities. By exploiting a tax limit change having a heterogeneous impact on local authorities, I employ a difference-in-differences research design to find that tax limits provoke a moderate reduction in voter turnout and candidate competition, some improvement in candidate valence proxies, and a sizeable rise in elected mayors' win margins. The evidence is compatible with the hypothesis that, by lessening the ideological stakes of local elections, tax limits favor voters' party-line crossing and convergence of votes to the most valent candidates.

The rest of the paper is organized as follows. Section 2 presents the institutional setup and the evolution of local tax limitation rules over the 2001-2010 decade in Italy. Section 3 reports the results from the empirical analysis, and section 4 concludes.

2. The Italian local government structure

2.1 Municipal elections

Elections in Italian municipalities take place every five years, with direct election of the mayor in a single or dual ballot depending on resident population size, with larger localities (>15,000 inhabitants) having a runoff stage among the top two candidates if none gets more than 50% of the votes in the first stage. Voters cast a vote for a mayoral candidate as well as for a councillor candidate if they wish.¹

¹ Two-thirds of the council seats are assigned to the councillor candidates (frequently grouped in one or more parties) supporting the mayor who is elected.

Voting is formally mandatory for all citizens aged 18 or higher, though no sanctions exist for abstainers. Importantly for the purposes of our empirical analysis, the election schedule across the country is staggered, meaning that several elections occurred in each of the 2001-2010 years, as shown in Table 1.

< Table 1 >

Turnout at municipal elections averages almost 80%, though it has been steadily declining over time, a secular tendency that is common to virtually all developed countries (Wattenberg 2002). Turnout variation across Italian municipalities is substantial, ranging from ‘frictional abstention’ in a number of smaller localities to below 50% in some small to medium sized towns. On the other hand, turnout rates never drop below 60% in larger cities (Revelli 2013).

The municipal level of government is decidedly fragmented, with average population size of around 7,000 inhabitants. The number of cities exceeding 100,000 inhabitants is only around 40, just two of them exceeding one million residents, with more than half of the localities having fewer than 3,000 residents.² This means that in most municipalities a single vote can make a difference for the mayoral candidate who is elected.³ Moreover, the likelihood that a vote will be decisive for the selection of candidates into the local councils - whose number varies depending on population size, from 12 councillors (<3,000 inhabitants) to 60 (>1,000,000 inhabitants) - is even higher. In smaller communities, a handful of votes frequently can be enough to gain a seat in the council.

2.2 Tax limits

Italian municipalities’ own revenues consist mainly of a local property tax and a surcharge on the national personal income tax. The latter was introduced in 1999 as part of a wider process of fiscal decentralization that started in 1993.⁴ The municipal income tax surcharge has since represented an

²Municipal governments are in charge of urban public transport, road maintenance and cleaning, waste collection and management, water and sewer services, environmental monitoring and protection, planning and zoning.

³For instance, in the elections held in 2009 in the municipality of Monte San Vito (Marche), 5,374 registered voters, the top two candidates each got exactly the same number of votes (1,653), thus requiring an *ad hoc* second round of elections.

⁴The local property tax was introduced in 1993, subject to state-imposed, two-sided rate limits that remained

important source of revenue for municipal governments, amounting to around one-fourth of total own municipal tax revenues in the late 2000s. Since the tax base is computed according to a comprehensive net ability to pay principle that includes income from all types of labor (employees, pensioners, self-employed, and non-incorporated business) and from real and financial assets, the tax is owed by the vast majority of residents. Moreover, the purely proportional features of the municipal surcharge (a flat rate on a tax base identical to the national personal income tax), with no low income exemptions, make it visible and salient to all personal income taxpayers, including those - say, part-time workers, small business owners and pensioners - who are burdened only lightly by the national personal income tax.

The municipal income surcharge is subject to the nationwide rate limits reported in Table 1. Interestingly, and crucially for our identification strategy, those limits changed on a nearly annual basis during the subsequent decade, and affected localities in heterogeneous ways. In particular,

Phase 1 (1999-2002): at the time of the introduction of the municipal surcharge and for the next three years, a nationwide rate limit was set at 0.5% of the income tax base, and annual municipal rate increases could not exceed 0.2%. This implies that a municipality consistently setting the maximum rates would hit the limit of 0.5% in 2001.

Phase 2 (2003-2004): in an attempt to slow down local tax and spending growth, the central government froze all local surcharge rates at their existing (2002) levels for the subsequent two years.

Phase 3 (2005-2006): following the protests of the authorities that were stuck at a zero tax rate and were facing growing financial troubles because of grant retrenchment, the central government established that municipal surcharge rates would remain at their 2002 levels in localities with a strictly positive surcharge rate, while the authorities stuck with a zero surcharge during the past had the freeze lifted. While this constituted a substantial relief for the latter authorities, the feeling grew in the remaining municipalities that local tax policy was virtually commanded by central government. This was accompanied by a rising number of nonpartisan mayoral candidates even in the largest cities, some of whom were even endorsed by major nonprofit organizations for the protection of consumers' rights, arguing that ideological voting in local elections had been swept away by fiscal centralization.

Phase 4 (2007-2008): following the 2006 general elections and change of government, the tax freeze

unchanged (0.4% and 0.7%, respectively, on the cadastral value of property – i.e., the periodically assessed rental value of property that is recorded in the municipal register).

was removed and the upper rate limit was raised to 0.8%.

Phase 5 (2009-2010): following the 2008 general elections, all municipal surcharge rates were frozen at their 2008 level.

Owing to the above features, authorities held elections subject to varying degrees of tax autonomy during the decade.⁵ The exogenous nature of the schedule of municipal elections and of the fiscal restrictions on municipal budgets makes it possible to estimate the impact of tax limits on a number of local election characteristics.

3. Empirical analysis

3.1 Tax limits and turnout

I use information on over 14,000 municipal elections held during the 2001-2010 decade (at least two elections in each of about 7,000 localities) to investigate the effect of electoral salience as determined by state fiscal limitations on voter turnout rates.⁶ In order to characterize low-stakes circumstances wherein local authorities' revenue-raising power is constrained, I build a dummy variable TL_{mt} that equals 1 if authority m is subject to a tax rate freeze in year t . As discussed above, the local income tax freeze applies to all municipal authorities irrespective of their $t-1$ rates in 2003-2004 and 2009-2010, and to authorities having positive $t-1$ tax rates only in 2005 and 2006.⁷ About 70% of the observations have $TL_{mt}=1$, and more than one-fourth of the municipalities experienced a switch in the TL_{mt} dummy (in either direction) from one election to the next.

The voter turnout rate is defined as the ratio of votes cast to eligible voters. Being bound by definition between 0 and 100%, I report estimates based on a linear specification (1) as well as on a log-of-the-

⁵In fact, municipalities had very little chance of using the local property tax to counteract the restrictions on the local income tax: most of them were stuck at the statutory maximum property tax rate, and a large fraction of the property tax base was exempted from the municipal tax by national law.

⁶The Italian Ministry of the Interior manages and keeps detailed records of all municipal elections in 'general law' Italian regions, or around 90% of all local elections (<http://elezionistorico.interno.it>), while municipal elections are autonomously governed and administered in 'home rule' regions. Data on municipal income tax rates and elections prior to 2001 are lacking or incomplete.

⁷The tax freeze endogeneity issue is discussed in section 3.5.

odds transformation in equation (2):⁸

$$turnout_{mt} = \beta_{TL1} TL_{mt} + f_{m1} + y_{t1} + e_{mt1} \quad (1)$$

$$\ln(turnout_{mt}/(1 - turnout_{mt})) = \beta_{TL2} TL_{mt} + f_{m2} + y_{t2} + e_{mt2} \quad (2)$$

Here, f_{m1} (f_{m2}) absorbs all time-invariant local traits affecting turnout (*e.g.*, social and civic capital endowment), y_{t1} (y_{t2}) controls for common influences on all elections taking place in a given year, and e_{mt1} (e_{mt2}) captures unobserved time-varying influences on turnout in locality m ; the parameters picking the effect of tax limits are β_{TL1} and β_{TL2} .

The panel dataset is unbalanced both in the sense that some municipalities record more than two elections during the decade (because, for instance, of the mayor's resignation during the term of office) and because elections occur at different points in time (Table 1). The municipality-specific terms are treated as fixed and equations (1) and (2) are estimated by computing deviations from group means.

In addition to the tax freeze dummy TL_{mt} , richer specifications include population size and an indicator of electoral closeness, defined as the vote difference between the top two mayoral candidates. I use an *ex post* index because *ex ante* information on the closeness of elections is not available for municipal elections. I also enter the number of candidates. The latter variable might itself be affected by the stakes in elections, so that the estimated effect of tax limits on turnout after controlling for the number of mayoral candidates reveals whether tax limits have a direct effect on voter turnout or if they have only a mediated one working through lesser political competition. Finally, I control for concurrent elections to regional assemblies. I build a dummy variable that equals 1 if a municipal election took place on the same day as a regional election. Regional elections for the Italian regional assemblies take place every fifth year and are staggered too. Most regions (around 3/4) voted in 2005 and 2010, though municipal and regional elections occurred exactly on the same day in 2005 only. This results in around 5% of all municipal elections being held alongside a regional election.

The estimation results of equations (1) and (2) on the 2001-2010 election panel are reported in Table 2. Columns (2.1) and (2.3) rely on specifications that include only the tax freeze dummy (TL_{mt}) and

⁸Two of the 14,561 observations in Table 1 drop because the reported turnout rate was 100%, leading to a final dataset of 14,559 observations in Table 2.

municipality and year fixed effects for the linear and the log-of-the-odds transformation respectively. Columns (2.2) and (2.4) allow for other determinants of turnout.

< Table 2 >

The results from the linear and log-of-the-odds transformation are similar. As expected, the number of candidates has a positive and significant effect on turnout (p -value less than 0.01), while the size of population, the *ex post* win margin and the presence of a concomitant regional election are estimated to have little or no impact on voter participation. As for the key tax freeze dummy, it is estimated to have a significant negative effect on voter turnout. In terms of magnitude of the impact, the linear specification returns an estimate of -0.53, meaning that the tax freeze dampens turnout significantly, but by less than one percentage point. On the other hand, the marginal effects of the regressors on turnout vary with the level of the dependent variable in the log-of-the-odds transformation. In particular, the effect of the tax limit is less than 0.5 percentage points of turnout when turnout exceeds 90%, and rises to almost 1.3 percentage points at 50% turnout.

3.2 The 2006 treatment

It might be argued that, owing a universal tax freeze in a number of years, the effect of tax limits could be difficult to identify separately from unobserved statewide influences on voter turnout that have little to do with the actual degree of local government fiscal autonomy. In order to corroborate the evidence on the impact of tax limits on turnout, I focus on the 2006 tax freeze, and exploit the fact that a subgroup of municipal authorities having two consecutive elections in 2001 and 2006 was ‘treated’ by the 2006 tax limitation scheme, the rest of the authorities having elections in 2001 and 2006 serving the role of control group.⁹

According to the tax limitation rule in place in 2006, all authorities setting a positive surcharge on taxable income in 2005 had their rates frozen. In fact, this implies that their income tax surcharges would be fixed at their 2002 levels because of the limits imposed in years 2003 and 2004. On the other hand, authorities levying no surcharge in 2005 had the tax freeze removed in 2006. Of the 1,133 municipalities conducting elections in 2001 and 2006, 794 were frozen at their existing tax rate levels

⁹In the subsequent years (2007-2008), the tax freeze was lifted, to be put back in place in 2009-2010 on *all* authorities.

in 2006, while 339 were not so affected. The turnout difference-in-differences between the two samples can be straightforwardly computed as:

$$DiD_{TL} = E(\Delta turnout \mid TL_{2006} = 1) - E(\Delta turnout \mid TL_{2006} = 0). \quad (3)$$

where $\Delta turnout = turnout_{2006} - turnout_{2001}$.

Table 3 reports a number of characteristics of the taxing authorities in the two samples, showing that the municipalities subject to the tax freeze in 2006 are significantly less likely to be located in the South of Italy, and to exhibit a significantly faster rate of population growth (1.5 percentage points difference), mostly reflecting the secular dynamics of South to North migration in Italy and the more recent phenomenon of foreign immigration to affluent Northern regions. Finally, the authorities in the $TL=1$ sample were significantly more likely to be located in leftwing controlled regions in 2001 - a difference that vanishes after the political takeover of leftwing parties in the regional elections of 2005.

< Table 3 >

While it is hard to infer whether these differences might provoke different trends in turnout at municipal elections between the two samples (as discussed in section 3.5 below), focusing on the 2001 and 2006 municipal elections offers the unique opportunity to use the trajectory of local turnout in the concurrent general elections as the counterfactual turnout trends in the two samples. In fact, any difference in the trend of voter participation between 2001 and 2006 that is unrelated to the local tax freeze of 2006 (say, changes in income, education, and demographic composition) ought to be observed both in municipal and in parliamentary elections. Interestingly, municipal and parliamentary elections were held on the same day in 2001 (May 13),¹⁰ while the 2006 municipal elections were held on May 28, that is. seven weeks after the general elections (April 9, 2006). This creates an ideal setup for identifying the impact of local electoral stakes on turnout in mayoral elections relative to national elections, whose stakes should in principle be orthogonal to the presence of local tax limits.

The upper panel of Table 4 reports the trend in turnout in national parliamentary elections between 2001 and 2006 in the two samples. Turnout is high (above 80%) and even shows a mild increase from 2001 to 2006.

< Table 4 >

¹⁰Once at the polls, voters could in principle abstain from voting in either election if they wished.

Table 4 shows no significant difference between the two groups as far as participation trends in national elections are concerned, lending support to the hypothesis of parallel turnout trends that also is apparent in Figure 1.

< Figure 1 >

As far as municipal elections are concerned, the lower panel of Table 4 shows that turnout declines between the 2001 elections and the 2006 elections in both samples. This can be attributed to the fact that the 2001 elections gave voters the chance of casting a vote for parliamentary and mayoral elections at the same time, thus driving up turnout relative to what would have been in the absence of concurrent general elections, and relative to the secular decline in local voter turnout referred to in section 2 above. The decline is more pronounced in the treated group. The turnout difference-in-differences equals -1.3 percentage points, and is statistically significant. It is slightly larger than the estimated effect from the log-of-the odds specification around the median 2006 turnout rate (75%). Moreover, the effect of tax limits is virtually unaffected when controlling for the change in population size, number of candidates, election closeness and turnout at parliamentary elections.

3.3 Tax limits and political competition

As argued above, fiscal limitations can be expected to lessen political competition and restrain potential candidates from running for office by reducing the policy space and the expected benefits from election. The number of mayoral candidates in municipal elections through the 2000s varies from 1 to 16. Around 6% of all elections held between 2001 and 2010 are uncontested, while a two-candidate race is the most common (almost half of the elections).¹¹

I rely on the sharp design created by the tax limit change between the 2001 and 2006 elections. The difference-in-differences estimates are reported in Table 5: the number of candidates falls in the treated group and increases in the control group.

< Table 5 >

Tax limits have a significant negative effect on the degree of competition for office, though of relatively small magnitude (a 5% decline in the number of mayoral candidates in the treated relative

¹¹Two-digit figures are rare, and usually occur in larger cities. Roma had a record 16 mayoral candidates in the 2001 elections, and 12 in the 2006 elections. Milano had 10 mayoral candidates in both 2001 and 2006.

to the control group). Table 5 also shows that the lesser competition for office in the tax-limited sample relative to the control sample is not driven by changes in population size between the two elections.

3.4 Tax limits and valence

Finally, we turn to the investigation of whether tax limits have an impact on the quality of elected mayors. The fundamental intuition is that the move from private value (ideological) voting to common value (valence) voting that tends to be favored by the imposition of tax limits facilitates rational voters' party-line crossing and convergence towards high valence candidates.

Recent research proxies candidates' valences by their level of education (Galasso and Nannicini 2011), professional record (Bordignon *et al.* 2012), or labor market performance in terms of the Mincer residual from an earnings regression on individual level observables (Besley *et al.* 2012). Table 6 reports summary information on a number of mayors' sociodemographic characteristics in the 2001 and 2006 elections in the treatment and control groups.

< Table 6 >

In particular, Table 6 shows the share of elected mayors reporting positive scores on the following binary indicators of valence: young (age at appointment < 50), female, educated (holding a university degree or more), expert (having a specialization in management, administration, or law), and distinguished professional status (architects, engineers, physicians, accountants, lawyers, and academics). Table 6 shows that only the latter score exhibits a significant difference between the two groups in the 2006 elections.

The DiD estimates on the above indicators of valence are reported in Table 7.

< Table 7 >

For the most part, the results suggest that the 2001 to 2006 evolution of the composition of elected mayors in the two samples does not differ significantly along any of those dimensions, with the exception of the distinguished professional status valence proxy, which reveals a larger increase between 2001 and 2006 (around four percentage points) in the tax-limited sample than in the control sample.

On the other hand, given the difficulty of defining and measuring candidate valence objectively and accurately, Table 8 reports the results of estimating the impact of tax limits on mayors' win margins as indirect evidence of voters' convergence to valent candidates. Using the win margin change across

the 2001 and 2006 elections has the advantage of not requiring any *ad hoc* formulation of unobserved candidates' valence. To have comparable figures across municipalities, the win margin is expressed by the absolute difference in votes between the top two candidates as a percentage of the votes received by the elected mayor.¹² This way, the standardized win margin lies between 0 (in case of a tie) and 100 (in uncontested elections), and takes a median value of around 33 and 36 percentage points in the 2001 and 2006 elections respectively.

< Table 8 >

Table 8 shows that the win margin increases in the treated group and slightly declines in the control group. Overall, tax limits favor a striking convergence of votes towards one of the candidates: where tax limits bind, the win margin of the mayor is larger by over 5 percentage points relative to the control group. The estimated effect holds when controlling for differences in the number of candidates between 2001 and 2006. While an additional candidate reduces the elected mayor's win margin by almost 6 percentage points, on average, the effect of fiscal limitations remains large and significant (over 4 percentage points), thus ruling out the possibility that wider win margins are mechanically determined by less competition for office.

In fact, the two pieces of direct (based on explicit indicators of mayors' valence) and indirect (based on vote convergence) empirical evidence discussed above are not inconsistent. It turns out that elected mayors having distinguished professional status in tax-limited jurisdictions in 2006 (94 mayors) enjoy an excess win margin improvement of more than ten percentage points (an effect that is significant at the 10% level of confidence) over similarly qualified mayors in the control localities. Taken together, both the direct evidence based on mayors' valence proxies and the indirect evidence based on elected mayors' actual win margins are compatible with the hypothesis of fiscal centralization influencing election outcomes by facilitating common value voting and party-line crossing based on candidates' valence signals.

3.5 Robustness analysis

Table 9 reports the results of a number of checks of the robustness of the above evidence. First, I drop the observations in the top 5% and bottom 5% turnout distribution in 2006 (turnout rate above 87.4%

¹²The first round outcome is considered in case the election has a runoff stage.

and below 57.6%, respectively), and compute the difference-in-differences on the main variables of interest (voter turnout, number of mayoral candidates, win margin) for the remaining 1,020 election pairs, 2001-2006. This way, I allow for the possibility, discussed further below, that the results are driven by unusually large shocks to voting in local elections (*e.g.*, corruption scandals) that could be correlated with local tax setting policy. Second, I drop the observations in the bottom 10% distribution of turnout changes between 2001 and 2006 (turnout decline exceeding 16 percentage points between the two municipal elections). Third, in order to check whether uncontested elections are the sole drivers of the estimated effects of tax limits on the local political process, I exclude all observations wherein a candidate runs unopposed in the 2006 elections (49 municipalities). Fourth, I drop the four metropolitan areas (Roma, Milano, Napoli, and Torino), whose populations exceed that of the next largest localities by an order of magnitude. Fifth, given that Table 3 suggests that the treated authorities differ from the control ones on a number of dimensions, I perform a propensity score matching approach (Caliendo and Kopeinig 2008). In particular, I first estimate the probability that a municipality is selected into the treated group conditional on the initial municipal characteristics reported in Table 3 (the propensity score). Next, I compute DiD estimates using the logit-estimated propensity scores to assign kernel weights to the control observations (Heckman *et al.* 1998).

Finally, I allow for limits on municipal expenditures. Following Italy's adherence to the EMU Stability and Growth Pact (Maastricht Treaty 1992), Italian municipal authorities have had to abide by the rules of the so-called Domestic Stability Pact (DSP) consisting of a set of annually determined restrictions on municipal governments' outlays (Ambrosanio and Bordignon 2007).¹³ In order to control for the potential impact of such EU-imposed spending restrictions on local election stakes, I build a dummy variable *EL* that equals 1 if a locality's population exceeds the threshold (3,000 inhabitants in 2006) for being accountable to the DSP rules, smaller localities being exempt from the spending restrictions. The expenditure limitation scheme is presumed to be binding if an authority is statutorily required to comply with it (population > 3,000), capturing the idea that budgeting limits *per se* affect the popularly perceived ideological stakes in local elections, irrespective of whether the rather involved - and somewhat hard to decipher - limitations in force actually bind. Based on the joint operation of the tax

¹³Recent research has used panel data on Italian municipalities to investigate the effects of the DSP on a number of local policies, including compliance with the DSP rules, size of budget deficits, and spending composition and growth (Balduzzi and Grembi 2011; Bordignon *et al.* 2011; Grembi *et al.* 2012).

and expenditure limitations, it turns out that 416 (of the 794 tax limited authorities) were fully constrained in 2006 ($TEL = TL \times EL = 1$), while no authority was jointly tax and expenditure constrained in 2001. I compute the difference-in-differences for the main variables of interest as in equation (3).

< Table 9 >

The results of the foregoing checks are reported in Table 9. In general, the effects of the tax freeze on turnout rates, numbers of mayor candidates and win margins persist, or are reinforced, in all of those instances. When allowing for spending and taxing limitations at once as in the lower row of Table 9, the estimated effects are even larger than when considering tax limitations alone.

Finally, and as far as exogeneity of the tax limitation criteria that I have exploited above is concerned, it might be argued that selection of authorities into the tax freeze sample in 2006 cannot be treated as strictly exogenous given that it is determined by the income tax rates that were deliberately set by municipal governments before freezing was introduced. Authorities setting positive surcharge rates in the early years of application of the municipal income tax surcharge (1999-2002) would unexpectedly suffer the freeze in all subsequent years up to 2006. Our estimate of the 2006 tax freeze impact would be biased if the unobserved forces driving tax rates up in the early 2000s would also shape the later path of voter turnout. In order to ascertain whether an omitted variable is affecting both municipal tax rates and turnout, I can exploit the fact that income tax rates increased *before* the 2001 elections in a number of localities, while in the other localities they increased only *after* the elections. If in reality the early shock to local tax rates also affects turnout in later elections, I would expect the turnout change from 2001 to 2006 to differ significantly between the two groups. Of the 794 authorities facing the tax freeze in 2006, 617 already had a positive local income tax rate when the 2001 elections were held, while 177 of them had a zero tax rate in 2001. Arguably, the latter had not been hit by the fiscal shock yet. When allowing for a different 2001-2006 turnout trajectory between these two groups, no significant difference emerges: the turnout DiD between the early local income surcharge tax adopters and the latecomers is -0.66, with a standard error of 0.56. Similarly, neither the path of the number of candidates (-0.08, standard error = 0.09) nor of the mayors' win margins (-0.42, standard error = 2.75) diverge significantly in the two groups. This evidence lends support to the hypothesis that the 2006 tax freeze had an own impact on election stakes that seems unlikely to be explained by earlier shocks to local authorities' income tax setting policies.

4. Concluding remarks

This paper has explored the impact of tax limits - a key determinant of the actual degree of fiscal decentralization in multi-tiered government structures - on voter turnout, political competition and candidate selection in local elections. The fundamental idea is that tax limits deemphasize positional issues and make it more likely that voting in local elections occurs according to common values (signals about the competence of candidates) than to private values (ideological views), thus lowering turnout and weakening competition in local elections, but raising the chances of success of more valent candidates.

The empirical analysis on a panel dataset of Italian municipal governments' elections during the 2000s has exploited tax limit changes having a heterogeneous impact on local authorities. The decade-long panel data analysis and the quasi-experimental evidence focusing on the treatment of municipalities in the year 2006 reveal that tax limits depress voter turnout and the vigor of competition among mayoral candidates, while raising elected mayors' win margins. The fact that local turnout in the contemporaneously held general elections exhibits no significantly different trend in the treated *versus* control samples lends further support to the hypothesis of tax limits being responsible for deemphasizing position issues and favoring the pervasiveness of competence-based voting in local elections. The results are robust to a number of checks, and are reinforced when allowing for the influence of a parallel local public expenditure limitation scheme.

Acknowledgements

I would like to thank Massimo Bordignon, Margherita Borella, Leah Brooks, Jan Brueckner, Hubert Jayet, Colin Jennings, the Editor William Shughart, and three anonymous referees for helpful comments. All remaining errors are mine.

References

- Aldashev, G., Voter turnout and political rents, *Journal of Public Economic Theory* 17 (2015) 528-552.
- Ambrosanio, F., Bordignon, M., Internal stability pacts: The European experience, European Economic Governance Monitor, EEGM Papers P-4/2007.
- Andersen, J., Fiva, J., Natvik, G., Voting when the stakes are high, *Journal of Public Economics* 110

- (2014) 157-166.
- Balduzzi, P., Grembi, V., Fiscal rules and window dressing: The case of Italian municipalities, *Giornale degli Economisti* 70 (2011) 97-122.
- Banerjee, A., Pande, R., Parochial politics: Ethnic preferences and political corruption, CEPR Discussion Papers 6381 (2007).
- Bernhardt, D., Camara, O., Squintani, F., Competence and ideology, *Review of Economic Studies* 78 (2011) 487-522.
- Besley, T., Persson, T., Sturm, D., Political competition, policy and growth: Theory and evidence from the US, *Review of Economic Studies* 77 (2010) 1329-1352.
- Besley, T., Folke, O., Persson, T., Rickne, J., Gender quotas and the crisis of the mediocre man: Theory and evidence from Sweden, unpublished manuscript, November 2012.
- Blais, A., Anduiza, E., Gallego, A., Decentralization and voter turnout, *Environment and Planning C: Government and Policy* 29 (2011) 297-320.
- Bordignon, M., Nannicini, T., Tabellini, G., Moderating political extremism: Single round vs runoff elections under plurality rule, unpublished manuscript (2011).
- Brennan, G., Buchanan, J., *The Power to Tax: Analytical Foundations of a Fiscal Constitution*. Cambridge: Cambridge University Press, 1980.
- Caliendo, M., Kopeinig, S., Some practical guidance for the implementation of propensity score matching, *Journal of Economic Surveys* 22 (2008) 31-72.
- Casey, K., Crossing party lines: The effects of information on redistributive politics, *American Economic Review* 105 (2015) 2410-2448.
- Dhillon, A., Peralta, S., Economic theories of voter turnout, *Economic Journal* 112 (2002) 332-352.
- Feddersen, T., Rational choice theory and the paradox of not voting, *Journal of Economic Perspectives* 18 (2004) 99-12.
- Galasso, V., Nannicini, T., Competing on good politicians, *American Political Science Review* 105 (2011) 79-99.
- Geys, B., Heinemann, F., Kalb, A., Voter involvement, fiscal autonomy and public sector efficiency: Evidence from German municipalities, *European Journal of Political Economy* 26 (2010) 265-278.
- Ghosal, S., Lockwood, B., Costly voting when both information and preferences differ: Is turnout too high or too low? *Social Choice and Welfare* 33 (2009) 25-50.

- Grembi, V., Nannicini, T., Troiano, U., Policy responses to fiscal restraints: A difference-in-discontinuities design, IZA Discussion Paper No. 6952 (2012).
- Groseclose, T., A model of candidate location when one candidate has a valence advantage, *American Journal of Political Science* 45 (2001) 862-886.
- Heckman, J., Ichimura, H., Todd, P., Matching as an econometric evaluation estimator, *Review of Economic Studies* 65 (1998) 261--294.
- Henderson, A., McEwen, N., A comparative analysis of voter turnout in regional elections, *Electoral Studies* 29 (2010) 405-416.
- IEB, *Report on Fiscal Federalism 2012: Economic Crisis and Recentralization*. IEB, Institut d'Economia de Barcelona, 2013.
- Krishna, V., Morgan, J., Overcoming ideological bias in elections, *Journal of Political Economy* 119 (2011) 183-211.
- Maleski, E., Nguyen, C., Tran, A., The impact of recentralization on public services: A difference-in-differences analysis of the abolition of elected councils in Vietnam, *American Political Science Review* 108 (2014) 144-168.
- Michelsen, C., Boenisch, P., Geys, B., (De)centralization and voter turnout: Theory and evidence from German municipalities, *Public Choice* 159 (2014) 469-483.
- Percival, G., Currin-Percival, M., Bowler, S., van der Kolk, H., Taxing, spending and voting: Voter turnout rates in statewide elections in comparative perspective, *State and Local Government Review* 39 (2007) 131-143.
- Revelli, F., Tax limits and local democracy, IEB Institut d'Economia de Barcelona, UB, Working Paper, 56/2013.
- Stokes, D., Spatial models of party competition, *American Political Science Review* 57 (1963) 368-377.
- Svensson, J., Controlling spending: Electoral competition, polarization, and endogenous platforms, unpublished manuscript (2005).
- Wattenberg, M., *Where Have All the Voters Gone?* Cambridge, MA: Harvard University Press, 2002.

Table 1 Turnout rates and tax limits in Italian municipal elections

year	turnout (%)	obs.	tax limit (%)	freeze
2001	81.49	1,264	0.5	
2002	76.60	793	0.5	
2003	77.25	348	0.5	yes
2004	79.28	4,325	0.5	yes
2005	76.81	550	0.5	yes [*]
2006	74.59	1,261	0.5	yes [*]
2007	73.57	837	0.8	
2008	78.89	459	0.8	
2009	76.92	4,088	0.8	yes
2010	73.09	636	0.8	yes
	77.50	14,561		

Notes: turnout rate = votes/electorate; includes all municipalities for which information on at least two elections is available. ^{*} : tax rate freeze only applies to authorities setting a positive tax rate in the previous year. Source: Ministero dell'Interno, Municipal election data; Ministero dell'Economia e delle Finanze.

Table 2 Panel data estimation results: tax limits and turnout

	(2.1)	(2.2)	(2.3)	(2.4)
	linear		log-of-the-odds	
TL dummy	- 0.530 ** (0.256)	- 0.462 ** (0.243)	- 0.045 *** (0.015)	- 0.050 *** (0.015)
population (,000)		- 0.043 * (0.026)		- 0.003 (0.002)
mayor candidates		0.743 *** (0.049)		0.043 *** (0.003)
win margin		- 0.007 (0.011)		- 0.001 (0.001)
regional election		0.527 (0.426)		- 0.002 (0.028)
year effects	yes	yes	yes	yes
municipality effects	yes	yes	yes	yes
observations	14,559	14,559	14,559	14,559

Notes: dependent variable = log of the odds transformation of the turnout rate; uses all municipalities for which information on at least two elections is available. Standard errors in parentheses. ***: p-value<0.01; **: p-value<0.05; *: p-value<0.10.

Table 3 Municipalities' characteristics: 2001-2006

		TL=1	TL=0	difference
Population	2001	12,882 (102,295)	7,269 (68,478)	5,613 (6,065)
	2006	13,133 (102,519)	7,541 (71,504)	5,592 (6,120)
population growth (2001-2006)		2.350 (5.437)	0.781 (5.688)	1.569*** (0.358)
South		0.356 (0.479)	0.467 (0.499)	- 0.111*** (0.031)
left-wing controlled region	2001	0.283 (0.451)	0.174 (0.380)	0.109*** (0.028)
	2006	0.739 (0.439)	0.740 (0.439)	- 0.001 (0.028)
observations		794	339	

Notes: Source: ISTAT, National Institute of Statistics; Ministero dell'Interno, Regional election data. Standard errors in parentheses.

***: p-value<0.01; **: p-value<0.05; *: p-value<0.10.

Table 4 Turnout 2001-2006: tax limitations

turnout at parliamentary elections				
	2001	2006	Difference	Observations
TL = 1	82.838	83.721	0.883	794
TL = 0	79.736	80.953	1.217	339
DiD			- 0.334 (0.469)	
turnout at municipal elections				
TL = 1	82.613	75.064	-7.549	794
TL = 0	79.893	73.706	-6.187	339
DiD			- 1.362 *** (0.427)	
DiD			- 1.248 *** (0.421)	
Population			- 0.262 *** (0.091)	
Candidates			0.469 *** (0.180)	
win margin			- 0.006 (0.016)	
Turnout Parliament			0.129 *** (0.027)	
observations				1,133

Notes: TL = 1: tax freeze applies in 2006. Standard errors in parentheses. ***: p-value<0.01; **: p-value<0.05; *: p-value<0.10.

Table 5 Number of candidates 2001-2006: tax limitations

	2001	2006	difference	observations
TL = 1	2.783	2.697	-0.086	794
TL = 0	2.416	2.475	0.059	339
DiD			- 0.145 ** (0.070)	
DiD			- 0.145 ** (0.070)	
population			- 0.023 (0.015)	
observations				1,133

Notes: TL = 1: tax freeze applies in 2006. Standard errors in parentheses. ***: p-value<0.01; **: p-value<0.05; *: p-value<0.10.

Table 6 Mayors' characteristics: 2001-2006

		TL=1	TL=0	Difference
young	2001	0.684 (0.465)	0.664 (0.473)	0.020 (0.030)
	2006	0.504 (0.500)	0.510 (0.501)	- 0.006 (0.032)
female	2001	0.082 (0.274)	0.088 (0.284)	- 0.006 (0.018)
	2006	0.082 (0.274)	0.112 (0.316)	- 0.030 (0.019)
education	2001	0.466 (0.499)	0.434 (0.496)	0.032 (0.032)
	2006	0.442 (0.497)	0.440 (0.497)	0.002 (0.032)
expert (management, administration & law)	2001	0.165 (0.371)	0.130 (0.337)	0.035 (0.023)
	2006	0.145 (0.352)	0.136 (0.343)	0.009 (0.023)
high professional status	2001	0.055 (0.229)	0.050 (0.219)	0.005 (0.015)
	2006	0.119 (0.323)	0.074 (0.262)	0.045** (0.020)
observations		794	339	

Notes: Source: Anagrafe Amministratori Locali. Standard errors in parentheses. ***: p-value<0.01; **: p-value<0.05; *: p-value<0.10.

Table 7 Candidate valence 2001-2006: tax limitations

	DiD
age (< 50)	- 0.026 (0.038)
gender (female)	- 0.024 (0.020)
education (graduate)	- 0.030 (0.034)
expertise (management, administration & law)	- 0.026 (0.026)
professional status (high)	0.040** (0.020)

Notes: 1,133 obs; 2001-2006 elections. Standard errors in parentheses. ***: p-value<0.01; **: p-value<0.05; *: p-value<0.10.

Table 8 Win margin 2001-2006: tax limitations

	2001	2006	difference	observations
TL = 1	32.408	37.165	4.757	794
TL = 0	35.194	34.512	-0.682	339
DiD			5.439 ^{***} (2.091)	
DiD			4.584 ^{**} (2.056)	
Population			- 0.075 (0.436)	
Candidates			- 5.899 ^{***} (0.874)	
observations				1,133

Notes: TL = 1: tax freeze applies in 2006; win margin (0-100) = vote difference standardized by the number of votes of the elected mayor; standard errors in parentheses. ***: p-value<0.01; **: p-value<0.05; *: p-value<0.10.

Table 9 Robustness analysis: 2001-2006

	turnout	candidates	win margin	observations
removing bottom 5% and top 5% turnout rates (2006)				
DiD	- 1.423 *** (0.437)	- 0.153 ** (0.076)	4.956 ** (2.143)	1020
removing bottom 10% turnout rate changes (2001-2006)				
DiD	- 1.276 *** (0.349)	- 0.145 ** (0.073)	5.394 *** (2.168)	1020
removing uncontested elections (2006)				
DiD	- 1.452 *** (0.418)	- 0.166 ** (0.071)	6.453 *** (2.044)	1084
removing 4 largest cities				
DiD	- 1.389 *** (0.427)	- 0.138 ** (0.070)	5.202 *** (2.093)	1129
propensity score matching				
DiD	- 1.510 *** (0.455)	- 0.191 *** (0.069)	6.019 *** (2.388)	1133
tax and expenditure limitations (TEL)				
DiD	- 1.622 *** (0.404)	- 0.184 *** (0.066)	5.384 *** (1.986)	1133

Notes: Standard errors in parentheses. ***: p-value<0.01; **: p-value<0.05; *: p-value<0.10.

Figure 1 Voter turnout rate in parliamentary elections

